

## AMENDED CLAIMS

[received by the International Bureau on 03 August 2005 (03.08.05),  
original claims 1 to 47 replaced by new claims 1 to 35 (4 pages)]

1. A water-based composition for treating a metal, comprising a treatment agent selected from an alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide,  
5 and in concentrations effective to solubilize said treatment agent:

a non-ionic relatively hydrophobic surfactant which is a compound of the formula



- wherein  $R_1$  represents  $C_{10}$ - $C_{24}$  alkyl or alkenyl,  $m$  is 0 or 1 and  $n$  is 1 or 2, or which is  
10 ethoxylated fatty acid monoglyceride;

an anionic surfactant; and

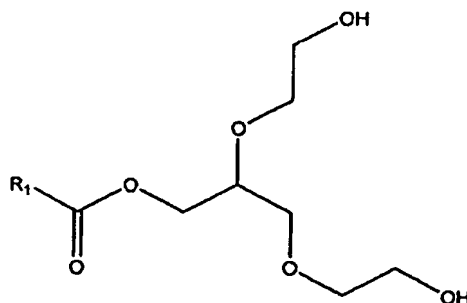
a zwitterionic surfactant selected from betaine surfactants, imidazoline-based surfactants, aminoalkanoate surfactants and iminodialkanoate surfactants.

- 15 2. The composition of claim 1, wherein the treatment agent is hexadecyl or octadecyl mercaptan.

3. The composition of claim 1 or 2, wherein the non-ionic relatively hydrophobic surfactant comprises cocamide DEA.

20

4. The composition of claim 1, wherein the non-ionic relatively hydrophobic surfactant comprises an ethoxylated fatty acid monoglyceride of the formula:



25

wherein  $R_1$  represents  $C_{10}$ - $C_{24}$  alkyl or alkenyl.

5. The composition of claim 4, wherein the surfactant is a compound in which R1 represents C<sub>12</sub>-C<sub>18</sub> alkyl or alkenyl.
- 5 6. The composition of claim 5, wherein the surfactant is glycereth-2-cocotate.
7. The composition of any preceding claim, comprising 0.5-10 wt % of the relatively hydrophobic surfactant.
- 10 8. The composition of any preceding claim, comprising 1-6 wt % of the relatively hydrophobic surfactant.
9. The composition of any preceding claim, comprising 2-5 wt % of the relatively hydrophobic surfactant.
- 15 10. The composition of any preceding claim, further comprising a polyol.
11. The composition of claim 10, comprising 0.5-10 wt % of the polyol.
- 20 12. The composition of claim 10, comprising 1-8 wt % of the polyol.
13. The composition of claim 10, comprising 1-5 wt % of the polyol.
14. The composition of any of claims 10-13, wherein the polyol is glycerol.
- 25 15. The composition of any preceding claim, wherein the anionic surfactant is of the formula RO-(CH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>SO<sub>3</sub>M wherein R represents C<sub>10</sub>-C<sub>18</sub> alkyl, n is 2-6 and M represents a monovalent cation.
- 30 16. The composition of claim 15, wherein the anionic surfactant is a monovalent cation salt of laureth sulfate.

17. The composition of any preceding claim, wherein the amount of anionic surfactant (solids) is 0.1-15 wt%.
18. The composition of claim 17, wherein the amount of anionic surfactant (solids) is 0.3-10 wt%.
19. The composition of claim 17, wherein the amount of anionic surfactant (solids) is 0.5-1 wt%.
20. The composition of any preceding claim, wherein the zwitterionic surfactant is cocamidopropyl betaine.
21. The composition of any preceding claim, wherein the zwitterionic surfactant is present in an amount of 0.3-6 wt%
22. The composition of claim 21, wherein the zwitterionic surfactant is present in an amount of 0.6-3 wt%.
23. The composition of claim 21, wherein the zwitterionic surfactant is present in an amount of 0.9-1.5 wt%.
24. A composition according to any preceding claim comprising treatment agent in an amount of 0.1-5 wt%
25. A composition according to claim 24 comprising treatment agent in an amount of 0.5-2 wt%.
26. A composition according to claim 24, comprising treatment agent in an amount of about 1 wt%.
27. A composition according to any preceding claim, further comprising a salt of a strong base with a strong mineral acid.

28. The composition of claim 27, wherein the salt is sodium chloride or sodium sulfate.
- 5 29. The composition of claim 27 or 28, comprising 0.1-3 wt% of said salt.
30. The composition of claim 27 or 28, comprising 0.5-2 wt% of said salt.
31. The composition of claim 27 or 28, comprising about 1 wt% of said salt.
- 10 32. The composition of any preceding claim, which is a polishing dip and further comprises an acid and a thiourea.
33. The composition of any of claims 1-31, which is a cream or paste polish
- 15 further comprising a solid polishing medium.
34. The composition of claim 33, wherein the polishing medium is precipitated chalk, infusorial earth, silica or  $\gamma$ -alumina.
- 20 35. Use of the composition of any of claims 1-34 for the treatment of a silver-copper alloy, a silver-copper-germanium alloy, copper, brass or nickel.

25

# INTERNATIONAL SEARCH REPORT

International Application No.  
PCT/GB2005/050043

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 C23F11/16 C11D3/00 C11D3/34 C11D11/00 C09G1/02		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7 C23C C11D C23F C09G		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, COMPENDEX		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X, L	WO 2004/087996 A (MIDDLESEX SILVER CO. LIMITED; JOHNS, PETER, GAMMON; HARRISON, CLARE, E) 14 October 2004 (2004-10-14)  page 12, line 1 - page 25, line 5; claims; examples 8-10	1-7, 11, 20-23, 26-28, 40-43
P, X, L	WO 2004/106567 A (MIDDLESEX SILVER CO. LIMITED; JOHNS, PETER, GAMMON) 9 December 2004 (2004-12-09) page 12, line 30 - page 18, line 2; claims 12-19	1, 42, 43
X	EP 0 492 487 A (DODUCO GMBH + CO DR. EUGEN DUERRWAECHTER) 1 July 1992 (1992-07-01) column 3, line 18 - column 5, line 40; claims; examples	1-33, 42, 43, 45-47
-/--		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *Z* document member of the same patent family		
Date of the actual completion of the international search  8 June 2005		Date of mailing of the international search report  16/06/2005
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  Mauger, J

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB2005/050043

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 503 883 A (IAN ALASTAIR MONCRIEFF FORD ET AL) 31 March 1970 (1970-03-31) column 2, line 67 - column 3, line 52; claims; examples 2,7	1-33, 39-43
X	GB 1 070 383 A (J. GODDARD & SONS LIMITED) 1 June 1967 (1967-06-01) claims; example 7	1-33, 39-43
X	GB 1 217 414 A (J. GODDARD & SONS LIMITED) 31 December 1970 (1970-12-31) page 1, line 85 - page 2, line 49; claims; example 1	1-33,39, 43
X	US 3 248 235 A (PRYOR DONALD M ET AL) 26 April 1966 (1966-04-26) column 3, line 26 - line 33; claims; examples	1-44

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No  
PCT/GB2005/050043

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2004087996	A	14-10-2004	WO 2004087996 A1	14-10-2004
WO 2004106567	A	09-12-2004	GB 2402399 A	08-12-2004
			WO 2004106567 A1	09-12-2004
EP 0492487	A	01-07-1992	DE 4041596 A1	02-07-1992
			DE 59107581 D1	25-04-1996
			EP 0492487 A1	01-07-1992
			ES 2086471 T3	01-07-1996
US 3503883	A	31-03-1970	GB 1070384 A	01-06-1967
			DE 1243808 B	06-07-1967
GB 1070383	A	01-06-1967	DE 1519159 A1	12-06-1969
			US 3518098 A	30-06-1970
GB 1217414	A	31-12-1970	BE 734968 A	01-12-1969
			DE 1932524 A1	16-04-1970
			FR 2011801 A5	06-03-1970
			NL 6909896 A	31-12-1969
US 3248235	A	26-04-1966	BE 622957 A	
			CH 418088 A	31-07-1966
			DK 113660 B	14-04-1969
			FR 1347705 A	04-01-1964
			GB 956927 A	29-04-1964
			NL 283747 A	
			SE 310529 B	05-05-1969